

Relations of Masculinity and Femininity with Personality Dimensions of the Five-Factor Model

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The aim of this study was to examine the relations of masculinity and femininity with five-factor personality dimensions in Croatian adolescents. Sample consisted of 464 high school graduates, all of them Caucasian, and approximately 90% Croatian. Results were analyzed by multiple regression procedure using masculinity, femininity, gender, and their interactions as independent variables. All three main effects were found to be statistically significant, with no significant interactions. Masculinity contributes positively to extraversion and conscientiousness, and negatively to neuroticism and agreeableness, while femininity shows strong positive relationship with agreeableness, and weak positive relationships with the other four dimensions. Results are discussed in terms of four proposed models of the relation between gender role orientation and psychological health.

Over the past two decades, androgyny research has mainly been focused on the relationship between the gender role orientation and a number of variables tapping psychological health and well-being. The research has been primarily guided by one of the core propositions of androgyny theory—namely, that androgynous individuals, being in possession of high levels of both masculine and feminine personality traits, show better adjustment and greater behavioral flexibility than their gender-typed peers (e.g., Bem, 1974, 1984; Cook, 1985; Spence, Helmreich, & Stapp, 1975).

The extensive research, however, failed to produce straightforward results. The initial validation studies yielded results supporting the above-mentioned proposition: they indicated greater behavioral flexibility in an-

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drogynous individuals across various situations (Bem, 1975; Bem & Lenney, 1976; Bem, Martyna, & Watson, 1976), as well as their higher self-esteem (Spence et al., 1975; Spence & Helmreich, 1978). Later studies, however, relativized such conclusions, having found much stronger effects of masculine traits on psychological adjustment than of the feminine ones (e.g., Antill & Cunningham, 1979; Cook, 1985; Feather, 1985; Jones, Chernovetz, & Hansson, 1978; Zeldow, Clark, & Daugherty, 1985). Several meta-analyses consistently confirmed masculinity as the primary predictor of psychological health (Bassoff & Glass, 1982; Taylor & Hall, 1982; Whitley, 1983, 1984). Cook (1985) dubbed this "the masculine supremacy effect." The superiority of masculine traits in predicting positive outcomes is attributed to their greater behavioral value in the American society (Bassoff & Glass, 1982; Bernard, 1980; Kelly & Worell, 1978; Taylor & Hall, 1982).

The theoretical notions and empirical findings on the relationship between the gender roles and broadly defined psychological health have been conceptualized within four theoretical models (Cook, 1985; Hall & Taylor, 1985; Marsh & Byrne, 1991; Taylor & Hall, 1982; Whitley, 1983, 1984).

The traditional *gender-typed* or *congruence model* is based upon the long-standing assumption that masculinity and femininity represent the opposite ends of a single dimension, and are, therefore, mutually exclusive. According to this model, psychological health is tied to the acquisition of a gender role congruent with one's biological gender: masculine in men, and feminine in women.

The *androgyny model* has several variants. The *additive* or *main effects model* conceptualizes masculinity and femininity as two independent dimensions, contributing independently in the prediction of one's psychological health. The androgyny effect, therefore, represents a sum of the separate masculinity and femininity components. The *interactive model* views androgyny as an entity beyond a mere sum of these two components, defining it as an interaction of the two dimensions that produces a positive effect on one's psychological health. Some authors tried to reconcile the two models, acknowledging both the main effect and the interaction of masculinity and femininity, in the so-called *emergent properties model* of androgyny (Hall & Taylor, 1985). The most recent of these types of conceptualizations is the *differentiated additive androgynymodel* (Marsh, 1987; Marsh & Byrne, 1991), describing the relations between masculinity, femininity, and self-concept. As in the additive model, positive effects of both masculinity and femininity are predicted, but their relative contributions are seen as dependent on the specific criterion variables. More specifically, masculinity and femininity

are expected to be more positively related to those criterion variables to which they are locally and theoretically more related.

The *masculinity model* is mainly based upon the empirical findings indicating that the observed positive relationship between androgyny and psychological health can primarily be attributed to the masculinity component, while the contribution of the femininity component is much less pronounced, and even negligible. In other words, the individual's psychological health is primarily determined by his/her level of masculinity, irrespective of the actual gender.

As pointed out by Marsh and Byrne (1991), the empirical evidence, reviews of the published studies, and meta-analyses systematically support the masculinity model. As predicted by the androgyny theory, the research provided no evidence for the traditional model, but, contrary to the theoretical expectations, of all androgyny formulations only differentiated additive androgyny model received some empirical support.

The above-listed studies utilized a wide array of indicators of psychological health, such as depression, self-esteem, anxiety, well-being, locus of control, etc. Only a few of them, however, investigated the relationship of masculinity and femininity with basic personality dimensions as defined by some of the major personality theories. Out of those, the majority of studies has been carried out within the framework of Eysenck's personality model or five-factor personality model.

Jones et al. (1978) thus report masculine males being the lowest of all gender role groups in neuroticism, whereas masculine females are the most extraverted. Zeldow et al. (1985) report the negative correlation between masculinity and neuroticism, and positive between masculinity and extraversion. Examining the relations of Eysenck's E and N dimensions with masculinity and femininity, Kimlicka, Sheppard, Sheppard, and Wakefield (1988) also find positive relation of masculinity with extraversion and negative with neuroticism.

Lippa and Connely (1990), in a study investigating the relationship between masculine and feminine scales and five-factor dimensions, report the highest positive relations were the ones obtained between masculinity and openness to experience, and extraversion, while the strongest negative ones were of masculinity and neuroticism. Femininity showed the highest positive correlations with agreeableness and conscientiousness. Whitley and Gridley (1993) confirm the finding on the relations between masculinity and negative affectivity or neuroticism factor as defined by five-factor model, while femininity showed no such relation in their study. According to the authors, this finding provides evidence that masculinity and femininity are related to the different basic personality constructs. In the context of their examination of

the differences between various gender role categories on five-factor dimensions, Ramanaiah and Detwiler (1992) report that androgynous subjects have the highest means of all gender role groups on extraversion and conscientiousness. Furthermore, together with masculine subjects they have significantly lower result on neuroticism scale than the other two groups, whereas androgynous and feminine subjects scored the highest on openness to experience and agreeableness.

In his review of the research on five-factor personality model, Digman (1990) also points out that masculinity and femininity appear to be at least partly related to the five factors.

In general, results of the studies using the basic personality dimensions seem to be in accordance with the previous research findings supporting positive relations between masculinity and various indicators of psychological health. However, the nature of the relationship between masculinity and femininity and personality dimensions, particularly those defined within the framework of the five-factor personality model, is still to be explored. In the context of the above mentioned research on the relations between gender typed dimensions and psychological health, it could be expected that healthy functioning is indicated by the higher scores on extraversion, openness, agreeableness, and conscientiousness, and lower scores on neuroticism.

When interpreting the meaning of the above mentioned findings it is important to note that the vast majority of research was carried out on American college samples. Therefore, the transcultural nature of this evidence remains questionable. Namely, it can be hypothesized that some other societies might place different emphasis on the possession of instrumental, masculine vs. expressive, feminine traits. With this in mind, and in light of the Whitley and Gridley's (1993) call for the more detailed exploration of the relations between five-factor and gender role dimensions, we decided to examine the relations of masculinity and femininity with five-factor personality dimensions in Croatian adolescents. However, often misleading use of the labels "masculinity" and "femininity" is to be noted first. As Spence (1984, 1993) repeatedly pointed out, widely used gender role measures such as Bem Sex Role Inventory (BSRI) and Personality Attributes Questionnaire, represent just the measures of two specific sets of gender-differentiating personality traits, instrumental and expressive in nature, and should not be regarded as the measures of the much broader, general constructs of masculinity and femininity. Labels "masculinity" and "femininity" are therefore used in this research only as the labels for two specific clusters of socially desirable instrumental and expressive traits which represent the content of BSRI sex-typed scales.

METHOD

Subjects

The subjects were 464 high school graduates, 232 females and 232 males. All of them are Caucasian, approximately 90% Croatian. The average age of the sample was 18, with the age range from 17 to 19. The subjects live in five Croatian urban areas, one city and four towns. The sample was drawn as to adequately represent the high school population of this age in Croatia.

Materials

Gender-Role Orientation. Gender role orientation was assessed using the Croatian translation of the BSRI (Bem, 1974). It contains orthogonal 20-item Masculinity (M) and Femininity (F) scales, along with 20-item Social Desirability scale whose items are now mainly used as fillers. Translated scales have satisfactory alpha reliability coefficients (in our sample .83 and .82 for M and F scale, respectively), falling within the range of values reported by Bem (1974).

Five-Factor Personality Dimensions. The Croatian translation of the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992) was used for assessing domains of the five-factor personality model. The 240-item inventory consists of the following five scales: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C), each containing six 8-item facet scales. The alpha reliability coefficients for the N, E, O, A, and C scales obtained in our sample are .91, .88, .85, .88, and .90 respectively, and thus are highly comparable to those reported by the authors (Costa & McCrae, 1992).

Procedure

Subjects completed a booklet containing the two above mentioned measures along with two other personality inventories. The administration of the tests was carried out in groups of about 25–30 participants. The order of measures within booklets varied from group to group. Subjects were asked to indicate their age and gender on the cover sheet.

Statistical Analysis

The most commonly used technique in analyzing the relations between M and F and other variables is a two-way analysis of variance (ANOVA) with M and F as independent variables, or a three-way ANOVA when gender is added as a third independent variable (e.g., Lenney, 1991). This approach provides for the identification of M, F, and gender main effects, as well as of their interactions and thus allows for the testing of all proposed models of relations between M and F and psychological health. However, this approach has a major shortcoming—significant information loss due to the dichotomization of continuous M and F variables when subjects are divided into four groups according to the customary median-split method. Many authors therefore use the more appropriate regression techniques either as a principal data analysis procedure, or in addition to the traditional ANOVA (Hall & Taylor, 1985; Lubinski, Tellegen, & Butcher, 1981; Marsh & Bryne, 1991). This approach, as well as the ANOVA procedure, allows for the testing of M, F, and gender main effects, and their interactions, but avoids the information loss inherent to the ANOVA technique.

Here we used a regression technique with the original M and F scores and gender, as well as their interactions, as predictor variables. Prior to the regression analysis all variables were standardized to equalize their variances to unity.

The size of gender differences is expressed in commonly used *d* metric (Cohen, 1977), calculated by dividing the difference between male and female means by the pooled within-sex standard deviation. Positive effect size thus indicates that males score higher than females on a particular scale.

RESULTS

Means and standard deviations of our male and female subjects on NEO PI-R domain scales reveal significant gender differences for the three out of five dimensions (Table I). Females score higher than males on neuroticism and openness to a medium degree, and on agreeableness to a small degree. Gender differences were not found on extraversion and conscientiousness. With respect to the facet scales, gender differences are the most consistent in the neuroticism domain, where females score higher on all the facets. About half of the facet scales within remaining four domains show statistically significant gender differences.

Table I. Means (*M* and Standard Deviations (σ) of the Males and Females on the NEO PI-R Domain and Facet Scales and BSRI M and F Scales, Results of the *t*-Tests and Effect Sizes (*d*) for Gender Differences^a

	Males		Females		<i>d</i>
	<i>M</i>	σ	<i>M</i>	σ	
NEO-PI-R scale					
Neuroticism ^b	85.31	23.53	99.25	22.84	-.60
N1: Anxiety ^b	13.93	5.53	17.38	5.78	-.61
N2: Angry Hostility ^b	14.73	4.91	16.67	4.56	-.61
N3: Depression ^b	14.57	5.59	16.81	5.84	-.39
N4: Self-Consciousness ^b	14.95	4.96	17.10	5.30	-.42
N5: Impulsiveness ^b	16.22	4.63	17.92	4.61	-.37
N6: Vulnerability ^b	10.92	5.13	13.31	4.77	-.48
Extraversion	113.72	20.71	115.99	20.32	-.11
E1: Warmth ^b	19.97	4.67	21.70	4.47	-.37
E2: Gregariousness ^c	18.60	5.88	19.63	5.58	-.18
E3: Assertiveness	15.20	5.10	14.78	5.07	.08
E4: Activity	18.78	4.18	18.37	4.01	.10
E5: Excitement-Seeking ^b	20.35	4.87	19.09	5.03	.25
E6: Positive Emotion ^b	20.82	4.99	22.43	4.68	-.33
Openness ^b	112.51	18.96	121.76	18.08	-.50
O1: Fantasy ^b	19.68	5.63	21.91	5.11	-.41
O2: Aesthetics ^b	17.92	6.44	22.14	5.83	-.69
O3: Feelings ^b	20.42	4.60	22.56	4.35	-.48
O4: Actions ^c	14.82	3.61	15.65	3.90	-.22
O5: Ideas	20.57	5.43	20.13	5.51	.08
O6: Values	19.09	4.09	19.30	3.50	.05
Agreeableness ^c	104.06	21.27	108.17	19.38	-.20
A1: Trust	17.11	5.17	16.79	4.80	.06
A2: Straightforwardness	15.65	4.84	16.47	4.91	-.17
A3: Altruism ^b	21.07	4.61	22.64	4.20	-.36
A4: Compliance	15.25	5.29	14.31	5.58	.17
A5: Modesty ^c	16.16	5.50	17.37	5.89	-.21
A6: Tender-Mindedness ^b	18.82	4.18	20.52	3.42	-.45
Conscientiousness	112.11	23.39	110.70	20.78	.06
C1: Competence ^b	20.42	4.48	19.07	4.04	-.32
C2: Order	17.23	4.34	17.73	4.52	-.11
C3: Dutifulness	20.19	4.94	20.41	4.33	-.04
C4: Achievement striving	20.37	5.12	21.06	4.33	-.15
C5: Self-discipline ^b	17.97	5.67	16.53	5.59	.25
C6: Deliberation	15.92	5.37	15.83	5.06	.02
BSRI scale					
Masculinity ^b	97.38	15.62	89.85	14.48	.50
Femininity ^b	90.84	13.37	100.70	12.42	-.77

^aFacets listed in Feingold's (1994) meta-analysis are given in boldface.

^bStatistically significant gender differences, *p* < .01.

^cStatistically significant gender differences, *p* < .05.

Genders differ in the expected way on the two BSRI gender-typed scales—males score higher on M scale whereas females have a higher score on F scale. Although gender differences on BSRI M and F scales are not considered indicators of their validity (Lenney, 1991), such findings are typically found in research literature with BSRI since Bem's (1974) initial study.

Correlational matrix for the NEO PI-R and BSRI scales in male and female subsample, presented in Table II, shows the orthogonality of M and F scales, as required by the theory. Furthermore, the pattern of correlations among five-factor domains replicates fairly well the relations reported in the original American sample (Costa & McCrae, 1992). These results, as well as the ones reported in Table I, suggest that these scales are the adequate measures of five factors and masculinity and femininity dimensions on the Croatian sample.

The most relevant correlations for this study are the ones between five-factor domain scales and M and F scales. Among these, correlations obtained between femininity and agreeableness, and masculinity and extraversion are the highest, for both subsamples exceeding the value of .50. Correlations of NEO PI-R facet scales with BSRI scales, listed in Table III, show notable consistency in the pattern of correlations between M and

Table II. Correlations of M and F Scales with Domain Scales of the NEO PI-R: Males Above, Females Below the Diagonal^d

	N	E	O	A	C	M	F
N	—	.27 ^c	.08	-.02	-.36 ^c	-.37 ^c	.06
E	-.41 ^c	—	.25 ^c	-.13	.17 ^b	.53 ^c	.21 ^c
O	.10	.30 ^c	—	.02	-.14	.04	.21 ^c
A	.02	-.18 ^b	-.03	—	.09	-.35 ^c	.58 ^c
C	-.28 ^c	.04	-.18 ^b	.11	—	.30 ^c	.13
M	-.27 ^c	.57 ^c	.10	-.37 ^c	.25 ^c	—	.06
F	.11	.21 ^c	.09	.56 ^c	.13	.06	—

^aNEO PI-R scales: N = neuroticism, E = extraversion, O = openness to experience, A = agreeableness, C = conscientiousness; BSRI scales: M = masculinity; F = femininity.

^b $p < .05$.

^c $p < .01$.

Table III. Correlations of M and F Scale with NEO PI-R Facet Scales for Male and Female Subsamples^a

	Males		Females	
	<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>
NEO-PI-R scale				
Neuroticism				
N1: Anxiety	-.31 ^b	.12	-.26 ^b	.14
N2: Angry Hostility	.07	-.07	.12	-.07
N3: Depression	-.47 ^b	.14	-.31 ^b	.19
N4: Self-Consciousness	-.40 ^b	.15	-.41 ^b	.23 ^b
N5: Impulsiveness	-.03	-.11	.14	-.09
N6: Vulnerability	-.50 ^b	-.01	-.39 ^b	.03
Extraversion				
E1: Warmth	.16 ^c	.45 ^b	.24 ^b	.43 ^b
E2: Gregariousness	.21 ^b	.17 ^c	.29 ^b	.21 ^b
E3: Assertiveness	.64 ^b	-.06	.62 ^b	.00
E4: Activity	.54 ^b	.04	.56 ^b	.07
E5: Excitement-Seeking	.35 ^b	-.01	.42 ^b	.04
E6: Positive Emotion	.33 ^b	.27 ^b	.29 ^b	.15
Openness				
O1: Fantasy	-.06	.13	-.06	.06
O2: Aesthetics	-.08	.29 ^b	-.01	.17 ^c
O3: Feelings	.11	.37 ^b	.11	.22 ^b
O4: Actions	.11	-.08	.13	-.15
O5: Ideas	.08	.06	.25 ^b	.04
O6: Values	.05	-.12	-.08	-.13
Agreeableness				
A1: Trust	-.00	.43 ^b	-.05	.40 ^b
A2: Straightforwardness	-.40 ^b	.33 ^b	-.38 ^b	.31 ^b
A3: Altruism	-.02	.64 ^b	-.07	.65 ^b
A4: Compliance	-.41 ^b	.34 ^b	-.40 ^b	.33 ^b
A5: Modesty	-.45 ^b	.31 ^b	-.34 ^b	.24 ^b
A6: Tender-Mindedness	-.19 ^c	.47 ^b	-.09	.36 ^b
Conscientiousness				
C1: Competence	.47 ^b	.08	.38 ^b	-.05
C2: Order	.15 ^c	.09	.16 ^c	.10
C3: Dutifulness	.10	.22 ^b	.08	.22 ^b
C4: Achievement striving	.34 ^b	.05	.35 ^b	.07
C5: Self-discipline	.33 ^b	.05	.25 ^b	.06
C6: Deliberation	.01	.10	-.04	.17 ^c

^aM = masculinity scale; F = femininity scale.

^b*p* < .01.

^c*p* < .05.

F scales and specific personality traits within those broad domains. Namely, M scale correlates positively with all the extraversion facets, while feminin-

ity shows positive correlations with all specific traits of agreeableness domain. Furthermore, masculinity shows significant negative correlations, moderate in size, with four neuroticism facets, and small to moderate positive correlations with four of the conscientiousness facets. Except for the agreeableness domain, femininity scale generally shows few, relatively small correlations with the NEO PI-R facets.

The results of multiple regression, presenting the contribution of masculinity, femininity and gender, as well as their interactions, to the prediction of results in each of the five dimensions, are summarized in Table IV.

Multiple correlations for all five domain scales are significant due to the significant contribution of masculinity, femininity, and gender main effects, as none of the interactions contributed to the prediction. M scale has large standardized beta coefficients for all the personality scales except openness, contributing positively to the extraversion and conscientiousness, and negatively to the neuroticism and agreeableness. These results confirm the strong relations of masculinity and the five-factor personality domain, as it could be inferred from the correlational matrix in Table I. F scale shows positive, although weak relations with all the NEO domain scales except with agreeableness. Standardized beta coefficient of F for this scale is the largest beta coefficient obtained in this analysis, a finding that is in line with the strong positive correlations obtained between the two scales. The relative contribution of gender is also low but significant for all the NEO scales except conscientiousness.

Table IV. Multiple Correlations (*R*) and Standardized Beta Coefficients (*b*) of Masculinity (M), Femininity (F), Gender (G), and Their Interactions for the Five Personality Dimensions^a

Personality scale	Predictors							
	<i>R</i>	M <i>b</i>	F <i>b</i>	G <i>b</i>	M ' F <i>b</i>	M ' G <i>b</i>	F ' G <i>b</i>	M ' F ' G <i>b</i>
N	.44 ^b	-.33 ^b	.12 ^b	.16 ^b	-.03	.04	.02	.02
E	.58 ^b	.57 ^b	.19 ^b	.13 ^b	-.05	.06	.00	-.03
O	.30 ^b	.06	.14 ^b	.21 ^b	.03	.03	-.05	.00
A	.70 ^b	-.41 ^b	.63 ^b	-.21 ^b	.06	-.02	.00	.03
C	.30 ^b	.27 ^b	.12 ^b	.00	.05	-.04	.01	.02

^aNEO PI-R scales: N = neuroticism, E = extraversion, O = openness to experience, A = agreeableness, C = conscientiousness.

^b*p* < .01.

DISCUSSION

One of the unique aspects of this study is that it is based on a Croatian sample, and thus provides an opportunity to test the cross-cultural validity of some typical findings obtained in studies based mostly on American samples.

Gender differences on agreeableness and neuroticism scales found in this study mirror the findings obtained on American samples (Costa & McCrae, 1992; Trapnell & Wiggins, 1990) and are consistent with the recent meta-analysis of gender differences in personality (Feingold, 1994). The absence of such differences on extraversion and conscientiousness is also in line with the results reported by Costa and McCrae (1992), and by Feingold (1994). The effects of gender differences obtained in this study are generally comparable with those reported in Feingold's analysis both regarding the direction, and in the most cases the size of effects. As it can be expected, this correspondence of findings is greater for the results of American samples obtained on NEO PI-R facets than for the overall results collapsed across the personality scales in Feingold's study. However, the analysis of the facet scales yielded two findings specific for our sample: males failed to score higher on assertiveness facet within extraversion domain, and females also failed to show higher scores on the trust facet within domain of agreeableness. Further research is needed in order to determine whether the lack of gender differences on those two traits is a culturally specific finding, or just an artifact of the sampling procedure in this study. Generally, our results on gender differences in five broad domains obtained on a non-American sample match the major findings from the literature to a high degree, and thus provide further support to Feingold's (1994) conclusion that gender differences in personality are constant cross-nationally. On a domain level, the only exception from this pattern in our sample is a moderate gender difference favoring females on openness scale, contradicting the previous research findings of no gender differences in this domain (Costa & McCrae, 1992; Feingold, 1994). Given the fact that this dimension is the least researched and the most controversial of the five (e.g., McCrae & John, 1992; McCrae & Costa, 1997) this finding may indicate that cross-cultural significance of openness and its relations to other variables are yet to be investigated.

The pattern of correlations between M and F scales and five-factor personality scales discloses particularly high positive correlations between masculinity and extraversion and between femininity and agreeableness. Correlations found on a broad domain level are substantiated by the consistent pattern of positive correlations between BSRI scales and all the spe-

cific facets within those two domains. Such correlations are quite expected, in light of the content of these scales from both instruments and the similarity of their underlying constructs. Although BSRI is, in name, defined as a gender role inventory, its content is mainly limited to the socially desirable instrumental and expressive personality traits, stereotypically viewed as masculine and feminine (e.g., Spence & Helmreich, 1979; Spence, 1993). Wiggins and Holzmuller (1978) were the first to recognize that the content of BSRI M and F scales actually represents two clusters of interpersonal behavior closely related to the two orthogonal axes of the interpersonal circumplex, namely of dominant-ambitious and warm-agreeable. The notion that M and F actually tap those two broader domains of interpersonal behavior was later supported by a number of studies (Paulhus, 1987). On the other hand, agreeableness and extraversion of the five-factor model are viewed as primarily interpersonal dimensions, corresponding to the Wiggins' axes, and defining the plane of interpersonal behavior (McCrae & Costa, 1989). The content of the M and F scales on one side, and extraversion and agreeableness scales on the other thus has a common denominator in interpersonal circumplex. The strong correlations found between those two personality scales and masculinity and femininity scales both on domain and specific traits level support cross-cultural generality of such propositions. These correlations thus may well be due to the item content overlapping between these personality and gender-typed scales, as it is often the case with self-report personality measures (Nicholls, Licht, & Pearl, 1982). The inspection of the structure of correlations between gender-typed scales and extraversion and agreeableness facet scales provides some support for such conclusion, as they correlate most with the facets most similar in content. For both genders, the strongest correlation with the M scale is thus found in the assertiveness facet of extraversion, while F scale correlates most with the altruism facet of agreeableness. Therefore, masculinity and femininity do not seem to actually represent separate personality constructs, but are rather a part of broader personality domains, and thus can practically be subsumed under five-factor dimensions, as Lippa (1991) indicates, and as our results may suggest.

The main purpose of this study was to examine the relations of masculinity and femininity with five-factor personality dimensions with respect to the four proposed theoretical models. Predictions drawn from these models can be operationalized in terms of ANOVA or multiple regression main effects of femininity, masculinity, and gender as well as their interactions (e.g., Hall & Taylor, 1985).

First of them, the traditional sex-typed or congruence model posits that both masculinity and femininity significantly interact with gender. None of these interactions were found to be significant in our research.

Thus the results of our study are in line with numerous previous studies that consistently falsify to provide any empirical support for this model (e.g., Lubinski et al., 1981; Marsh & Bryne, 1991; Taylor & Hall, 1982; Whitley, 1983, 1984).

The most widely supported masculinity model predicts that only masculine traits positively contribute to efficient psychological functioning, while the contribution of femininity should be nonsignificant or even negative. Results of our study show both masculinity and femininity main effects to be statistically significant and generally positive, although the effect of masculinity remains relatively stronger. Our findings thus do not provide support to the empirically best supported masculinity model.

A more detailed inspection of results regarding the individual personality dimensions reveals that contribution of both masculinity and femininity is generally positive in nature. Positive relation of masculinity to the healthy psychological functioning is reflected in lower neuroticism and higher extraversion of high masculine subjects. Furthermore, high masculine subjects tend to be more conscientious, although less agreeable than low masculine ones. These findings are in line with a number of previous studies reporting positive relations between masculinity and extraversion, and negative between masculinity and neuroticism (e.g., Kimlicka et al., 1988; Lippa, 1991; Zeldow et al., 1985). The contribution of femininity is positive in all five-factor dimensions except neuroticism, where high feminine subjects tend to score higher than low feminine ones. These results are consistent with Lippa's (1991) finding of positive relations of femininity with agreeableness and conscientiousness, although they do differ with respect to extraversion and particularly openness, which Lippa found to be related to masculinity. However, femininity proved to be a strong predictor of only agreeableness, thus supporting the earlier notion on the shared content between the two constructs. In sum, our results suggest that there is masculinity effect for neuroticism, as the contribution of masculinity to this dimension is positive, while the contribution of femininity is negative. Furthermore, for agreeableness there seems to be a femininity effect, with femininity contributing positively, and masculinity contributing negatively. The results for extraversion and conscientiousness seem to best fit the additive model, with the positive effects of both masculinity and femininity. With openness, there is a positive, but very small contribution of only femininity.

Across all five scales, however, our findings seem to provide most support for the additive androgyny model. More specifically, differential contribution of masculinity and femininity to the individual personality dimensions seems to be mostly in accordance with the differentiated additive model of androgyny, which predicts different contribution of masculinity and femininity to the specific criterion. In other words, masculinity

and femininity should show the strongest positive correlations with the variables to which they are theoretically most related (Marsh, 1987; Marsh & Byrne, 1991). In our research this is particularly true for extraversion and agreeableness, which are conceptually more related to one gender-typed dimension than to the other. However, the overlapping between those personality dimensions and gender-typed dimensions suggests that caution should be exercised in interpretation, as discussed earlier.

Results of our study clearly show that both masculinity and femininity are related to the personality dimensions of the five-factor model. Major results of this study are generally consistent with the existing studies, most frequently done on American samples. Therefore, this study may be viewed as a cross-cultural replication of major findings on the relations between gender-typed dimensions and basic personality dimensions, with a sample that is not typical for gender role research. The substantial nature of the relations between personality constructs under study is thus verified and shown to be relatively unaffected by cultural differences. More research seems to be needed in this area. In conclusion, our results compel us to concur with Whitley and Gridley (1993), in that a more detailed study of the five-factor and M-F relations is needed, especially the one focusing on the specific facets of the five-factor dimensions.

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